

What is claimed is:

1. A precipitated silica, characterized by the following physical and chemical properties:

5	CTAB surface area	100-200 m ² /g
	BET/CTAB ratio	0.8-1.05
	DBP value	210-280 g/(100 g)
	Sears value V ₂	10-30 ml/(5 g)
	Moisture level	4-8%.
- 10 2. The precipitated silica as claimed in claim 1, characterized in that the CTAB surface area is from 100 to 160 m²/g.
- 15 3. The precipitated silica as claimed in claim 1 or 2, characterized in that the BET/CTAB ratio is from 0.9 to 1.03.
- 20 4. The precipitated silica as claimed in any of claims 1 to 3, characterized in that the Sears value V₂ is from 20 to 30 ml/(5 g).
- 25 5. The precipitated silica as claimed in any of claims 1 to 4, characterized in that the DBP value is from 250 to 280 g/(100 g).
- 30 6. The precipitate silica as claimed in any of claims 1 to 5, characterized in that the BET surface area is 80-110 m²/g.
- 35 7. The precipitate silica as claimed in any of claims 1 to 5, characterized in that the BET surface area is 110-150 m²/g.

8. The precipitated silica as claimed in any of claims 1 to 7, characterized in that
5 the ratio of Sears value V_2 to the BET surface area is from 0.140 to 0.370 ml/(5 m²).
9. A process for preparing precipitated silicas, characterized in that,
10 in succession,
 - a) an aqueous solution of an alkali metal silicate or alkaline earth metal silicate and/or of an organic and/or inorganic base with pH from 7 to 14 is taken as initial charge,
 - b) water glass and an acidifier are metered simultaneously into this initial charge at from 55 to 95°C, with stirring, for from 10 to 120 minutes,
 - c) stirring of the resultant suspension is continued at from 80 to 98°C, for from 1 to 120 minutes,
 - d) an acidifier is used to acidify to pH of from 2.5 to 5, and
 - e) the material is filtered and dried.
- 25 10. The process as claimed in claim 9, characterized in that
after step b) the additional steps of
c) stopping the feed for from 30 to 90 minutes
30 while maintaining the temperature,
and
d) then, where appropriate, simultaneously feeding water glass and an acidifier at the same temperature, with stirring, for from 20 to 120 minutes, preferably from 20 to 80 minutes
35 are carried out once or twice.
11. The process as claimed in claims 9 and 10,

characterized in that,
following b) or d), in step e) the pH is adjusted
to from 3 to 11 by adding an acidifier.

5 12. The process as claimed in claim 11,
characterized in that,
following step b) or d), in step c) the pH is
adjusted to from 7 to 10 by adding acid.

10 13. The process as claimed in claim 11 or 12,
characterized in that
in an additional step f) the pH is increased to
from 8 to 14 by adding a basic compound.

15 14. The process as claimed in claim 13,
characterized in that
the base used comprises an alkali metal silicate
and/or alkaline earth metal silicate and/or an
alkali metal hydroxide and/or an alkaline earth
20 metal hydroxide.

15. The process as claimed in any of claims 9 to 14,
characterized in that
during one of steps a) to h) an organic or
25 inorganic salt is added.

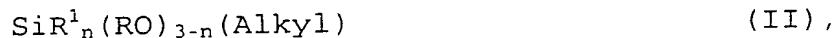
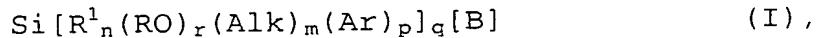
16. The process as claimed in any of claims 9 to 15,
characterized in that
for the drying process use is made of a pneumatic
30 drier, spray drier, disk drier, belt drier,
rotating-tube drier, flash drier, spin flash
drier, or spray tower.

17. The process as claimed in any of claims 9 to 16,
35 characterized in that
after the drying process, a roller compactor is
used for pelletizing.

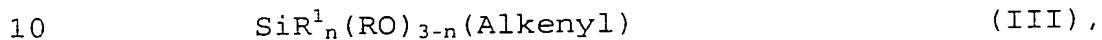
18. The precipitated silica claimed in any of claims 1 to 8, or prepared as claimed in any of claims 9 to 17,

characterized in that

5 the surface of the silica has been modified with organosilanes of the formulae I to III



or



where

B is $-\text{SCN}$, $-\text{SH}$, $-\text{Cl}$, $-\text{NH}_2$, $-\text{OC(O)CHCH}_2$,
15 $-\text{OC(O)C(CH}_3\text{)CH}_2$ (if $q = 1$), or $-\text{S}_w-$ (if $q = 2$), B being chemically bonded to Alk,

20 R and R^1 are an aliphatic, olefinic, aromatic, or arylaromatic radical having 2-30 carbon atoms, optionally with substitution by the following groups: the hydroxyl, amino, alcoholate, cyanide, thiocyanide, halo, sulfonic acid, sulfonic ester, thiol, benzoic acid, benzoic ester, carboxylic acid, carboxylic ester, acrylate, methacrylate, or organosilane radical, where the meaning or substitution of R and R^1 may be identical or different,

25 n is 0, 1, or 2,

30 Alk is a bivalent unbranched or branched hydrocarbon radical having from 1 to 6 carbon atoms,

m is 0 or 1,

35 Ar is an aryl radical having from 6 to 12 carbon atoms, preferably 6 carbon atoms, which may have substitution by the following groups: the hydroxyl, amino, alcoholate, cyanide, thiocyanide, halo, sulfonic acid, sulfonic ester, thiol,

benzoic acid, benzoic ester, carboxylic acid, carboxylic ester, acrylate, methacrylate or organosilane radical,

5 p is 0 or 1, with the proviso that p and n are not simultaneously 0,

 q is 1 or 2,

 x is a number from 2 to 8,

 r is 1, 2, or 3, with the proviso that r + n + m + p = 4,

10 Alkyl is a monovalent unbranched or branched saturated hydrocarbon radical having from 1 to 20 carbon atoms, preferably from 2 to 8 carbon atoms,

 Alkenyl is a monovalent unbranched or branched unsaturated hydrocarbon radical having from 2 to 20 carbon atoms, preferably from 2 to 8 carbon atoms.

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19. The precipitated silica as claimed in any of

20 claims 1 to 8 or as prepared in any of claims 9 to 17,

 characterized in that

 the surface of the silica has been modified with organosilicon compounds whose composition is

25 $\text{SiR}^{2-n}X_n$ (where n = 1, 2, 3, 4),

$[\text{SiR}^2_xX_yO]_z$ (where $0 \leq x \leq 2$; $0 \leq y \leq 2$; $3 \leq z \leq 10$, where $x + y = 2$),

$[\text{SiR}^2_xX_yN]_z$ (where $0 \leq x \leq 2$; $0 \leq y \leq 2$; $3 \leq z \leq 10$, where $x + y = 2$),

30 $\text{SiR}^2_nX_mOSiR^2_oX_p$ (where $0 \leq n \leq 3$; $0 \leq m \leq 3$; $0 \leq o \leq 3$; $0 \leq p \leq 3$, where $n + m = 3$, $o + p = 3$),

$\text{SiR}^2_nX_mNSiR^2_oX_p$ (where $0 \leq n \leq 3$; $0 \leq m \leq 3$; $0 \leq o \leq 3$; $0 \leq p \leq 3$, where $n + m = 3$, $o + p = 3$),

 and/or

35 $\text{SiR}^2_nX_m[\text{SiR}^2_xX_yO]_z\text{SiR}^2_oX_p$ (where $0 \leq n \leq 3$; $0 \leq m \leq 3$; $0 \leq x \leq 2$; $0 \leq y \leq 2$; $0 \leq o \leq 3$; $0 \leq p \leq 3$; $1 \leq z \leq 10000$, where $n + m = 3$, $x + y = 2$, $o + p = 3$)

 where

R^2 is alkyl and/or aryl radicals, substituted and/or unsubstituted, having from 1 to 20 carbon atoms, and/or is alkoxy, and/or alkenyl, and/or alkynyl groups, and/or is sulfur-containing groups,

5 groups,

X is a silanol, amino, thiol, halogen, alkoxy, alkenyl and/or hydrogen radical.

20. A process for preparing the silicas as claimed in
10 claim 18 or 19,
characterized in that
the precipitated silicas are modified with
organosilanes in mixtures of from 0.5 to 50 parts,
based on 100 parts of precipitated silica, in
15 particular from 1 to 15 parts, based on 100 parts
of precipitated silica, where the reaction between
precipitated silica and organosilane is carried
out during the preparation of the mixture (in
20 situ) or externally via spray application and
subsequent heat-conditioning of the mixture, via
mixing of the organosilane and the silica
suspension with subsequent drying and heat-
conditioning.
- 25 21. The use of silicas as claimed in any of claims 1
to 20 in elastomer mixtures, in vulcanizable
rubber mixtures, and/or in other vulcanizates,
such as pneumatic tires, tire treads, cable
sheathing, hoses, drive belts, conveyor belts, V-
30 belts, roller coverings, tires, shoe soles,
gaskets, and damping elements.
22. The use of silicas as claimed in any of claims 1
to 20 in battery separators, as antiblocking
35 agent, as matting agent in inks and paints, as
carrier for agricultural products and for feeds,
in coatings, in printing inks, in fire-
extinguisher powders, in plastics, in the non-

impact printing sector, in paper pulp, or in the personal care sector.

23. A vulcanizable rubber mixture or a vulcanizate
5 comprising, as filler, the precipitated silica as
claimed in claim 1, with the following physical
and chemical properties:

	CTAB surface area	100-200 m ² /g
	BET/CTAB ratio	0.8-1.05
10	DBP value	210-280 g/(100 g)
	Sears value V ₂	10-30 ml/(5 g)
	Moisture level	4-8%.